

ABSTRACT

A combined power system includes a rotational power source such as an internal combustion engine, the output shaft of which is arranged to drive a front section load and which is also coupled to the input shaft of an electromagnetic coupling device to drive a rear section load. The electromagnetic coupling device is controlled by an operating device to generate motor driving functions, when an input current is applied or to generate variable speed coupling functions through an output current when the electromagnetic coupling device is employed as a generator. The engine can be operated at constant speed or at a partially adjustable speed to maximize engine efficiency and reduce pollution, with one part of the differential speed output power generated throughout the differential mixing drive device being used for driving the load while the remainder of the power is converted through the generator function of the electromagnetic coupling device to charge the battery and thereby increase energy efficiency.